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(56) Documents Cited

GB 1276859 A EP 0202932 A WO 93/01736 A

US 5490737 A US 4241743 A

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(54) **Cosmetics applicator; brush wiper**

(57) An applicator for cosmetics; e.g. mascara; has cosmetic container 1, cap 8, applicator brush 14 extending from the cap, and a brush wiper 6 located in the container neck and having an array of resilient fingers extending from a body and spaced around an orifice in the body. Each finger has a part parallel to the axis of the orifice and an inwardly-directed free end, which ends remove the drop of cosmetic from the brush end as it is withdrawn. The finger ends may rest in a groove in brush rod 12.

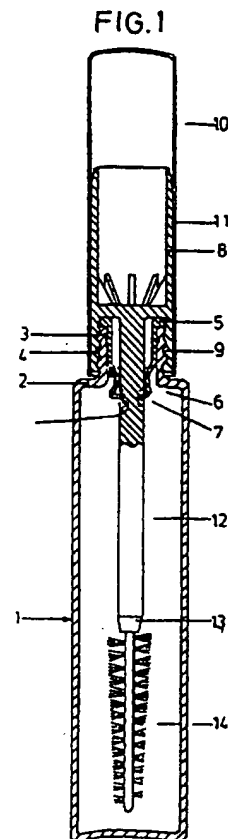


FIG. 1

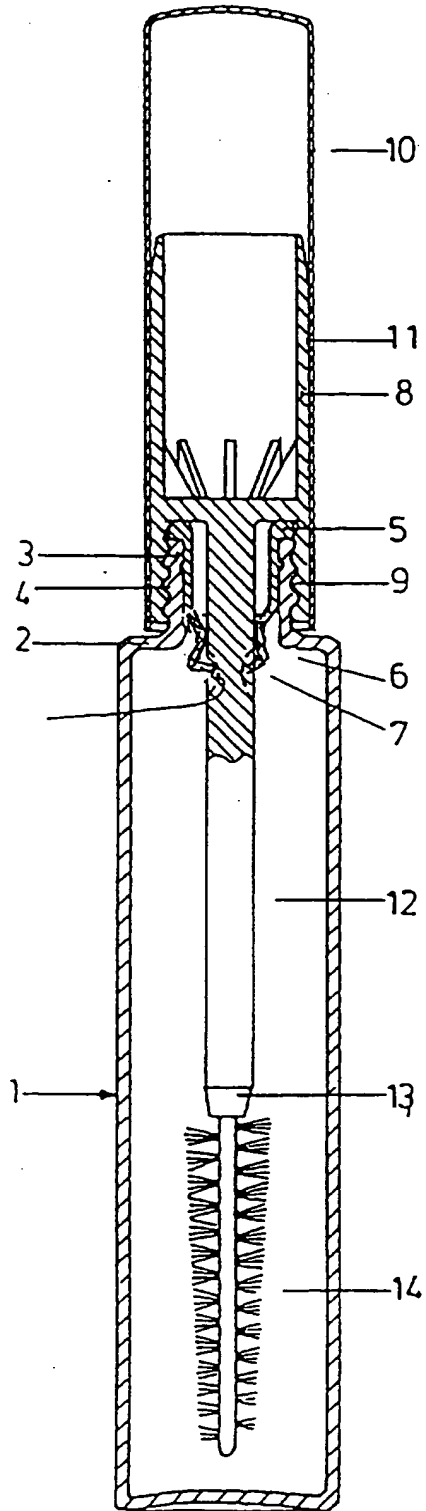


FIG. 2

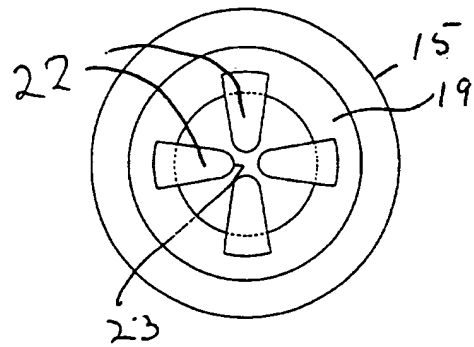
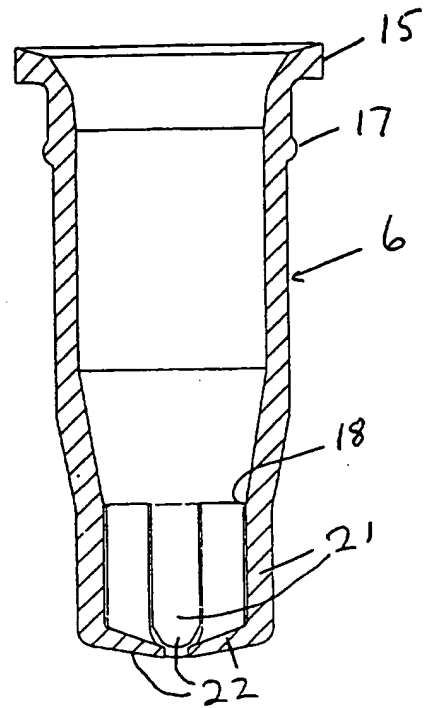
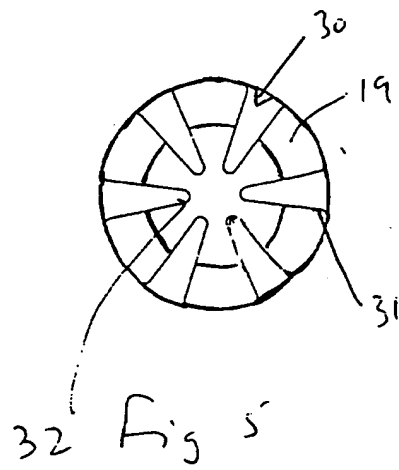
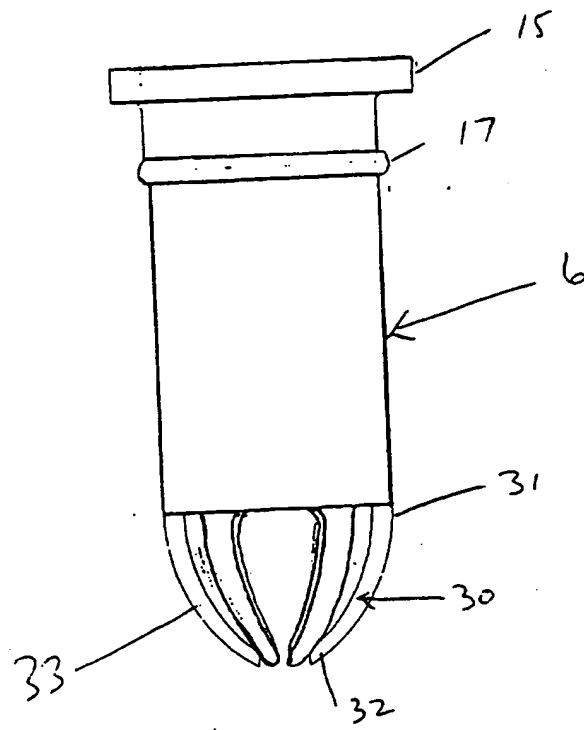


Fig. 3

Fig 4



"Device and Assembly"

This invention relates to a material applicator assembly, more especially to an applicator assembly for a cosmetics material, for example, mascara, and to a device for use therein.

Such an assembly normally comprises a container for the cosmetic, a closure cap with a rod at the free end of which is an applicator, for example a brush, and located within the container a wiper having an orifice which, as the rod and applicator are withdrawn from the container, wipes clean the rod and removes excess material from the applicator, leaving a desired quantity of material on the applicator.

A conventional wiper is satisfactory to the extent that it removes excess material from the edge of the applicator and may control the quantity of material within it when, for example, as is frequently the case with a mascara applicator, the applicator is a brush in which the mascara lies on, between and even within the fibres of the bristles. Conventional wipers are, however, less satisfactory in that they allow to remain, or even form, a drop or thread of material at the free end of the applicator.

In International Application WO 95/26147 there is described, for use in such an assembly, a wiper device having, in addition to the conventional resilient portion

with an orifice that is a close fit around the applicator rod, a plurality of resilient fingers extending inward from the material defining that orifice which close in on the free end of the applicator as it is drawn through the wiper and detach at least some of the material that is present on the free end of the wiper.

While the above-mentioned wiper device is effective, it does have some disadvantages. As will be appreciated, the relaxed diameter of the material defining the orifice is itself designed to be slightly less than the diameter of the rod, and the fingers extend inward from there. When the assembly is in its closed storage position, the material of the fingers is substantially deformed from its equilibrium configuration by the rod. Although in the referenced International Application it is proposed to alleviate this by providing the rod with an annular groove in the location contacted by the fingers, it has nonetheless been found that following prolonged storage the fingers do not close sufficiently onto the applicator as it is withdrawn through the wiper.

This tendency of the fingers to set in the deformed position (or, using other terminology, to lose their memory) is a significant disadvantage in that it restricts the shelf-life of the product and may inconvenience an infrequent user of a particular mascara unit.

The present invention provides a wiper device suitable for use in a cosmetics applicator assembly, which comprises a resilient body having a substantially circular orifice, and spaced apart around the periphery of the orifice a plurality of elongate resilient members, each having an end portion proximal to the body and a free, distal end portion, the proximal end portion extending from the body in a direction having at least a substantial component parallel to the axis of the circular orifice, the free distal end portions of the members extending inward toward the axis and the distal ends being at or close to the axis.

It will be appreciated that the orientation of the members defined above is that adopted when the wiper device is in its relaxed or equilibrium configuration, i.e., in the absence of deformation by, for example, the rod of a cosmetics material applicator. When the wiper is in position about such a rod having a diameter slightly larger than the relaxed diameter of the wiper orifice, the proximal portions will extend in a somewhat different direction, but still one having a substantial component parallel to the axis, and the distal portions will still extend inward toward the axis; the distal ends themselves will, however, be bearing resiliently against the applicator rod, being prevented by the rod from adopting their relaxed position at or close to the axis. Advantageously, when the device is in a relaxed

configuration, the proximal ends of the members are parallel to the axis.

In operation, accordingly, as an applicator rod is withdrawn from a container in which a wiper according to the invention is fitted, with the end of the wiper carrying the members facing away from the container opening, the edge or face of the wiper orifice will remove viscous material from the rod, and control the quantity of material remaining on the applicator, the elongate members bearing resiliently against the rod and applicator as they pass by in turn until, when the free end of the applicator passes the members, they will return to their relaxed position wiping at least part of the drop of material from the end of the applicator.

It will be appreciated that where the applicator is a brush the elongate members will recover toward their equilibrium configuration by intermingling with the brush to a greater or lesser extent as the brush passes them, the extent depending on the nature of the members, and the nature of the brush.

It has been found that by providing elongate resilient members of which the proximal end portions extend more or less axially the members have a reduced tendency to set in their deformed configuration, compared with the fingers of the device described in International Application WO 95/26147.

Typically, the wiper is provided with from 2 to 8, advantageously from 4 to 6, elongate members. The spacing between the members may increase from their proximal to distal ends, i.e., the free end of each wiper will subtend a smaller angle viewed along the axis of the orifice than does the proximal end, and if desired the extremities of the proximal ends of the members may merge to be in contact. Advantageously, however, the proximal ends are spaced apart, and may occupy at most 50% of the circumferential length of the orifice. Advantageously, the distal ends of the members taper, i.e., are roughly triangular, and the free sides of the triangles may be slightly concave. The wider proximal portions provide an enhanced resistance to deformation set while the tapering distal end portions do not remove significant quantities of material from the length of the applicator as it is withdrawn, but do remove from the free end of the applicator (which is normally tapered) any adherent blob of material as it is withdrawn past them.

Advantageously, when the wiper is viewed axially in its relaxed configuration, the elongate members occupy at most 50%, and preferably from 10 to 30%, of the area of the wiper orifice. Also, advantageously, the distance between a pair of opposed distal ends is at most 25% of the diameter of the orifice, preferably at most 20%, and more preferably at most 10%. In principle, the distal ends of the members may be in contact but such a

construction is not readily achieved by the presently preferred manufacturing process.

Referring again to the elongate members in their relaxed configuration, each may comprise a proximal portion that lies parallel to the axis of the orifice and a distal portion that lies transverse to the axis, each portion being substantially straight, or only the proximal extremity may lie truly parallel to the axis, the intermediate portion curving smoothly toward the distal extremity. Advantageously, the distal end, or end portion, is oriented at an obtuse angle, e.g., at from 95° to 155°, preferably 100° to 110°, e.g. about 105°, to the proximal end, or end portion, of the member.

The device is advantageously formed of a thermoplastic, elastomeric, or thermoplastic elastomeric material, for example, a synthetic or natural rubber, a polyurethane, an olefinic homo- or co-polymer, e.g., polyethylene, especially low density polyethylene, or an ethylene-unsaturated ester copolymer, for example an ethylene-vinyl acetate copolymer. The device may be formed of a laminate of two or more such materials.

The invention also provides a material applicator assembly comprising a container for a viscous material, a closure member, an applicator attached to the closure member by a rod, and a wiper device according to the

invention located within the container, advantageously positioned about the rod.

The invention further provides the use of a wiper device according to the invention to remove drops from the free end of a material applicator as it is withdrawn through the wiper device.

The invention further provides the use, in a wiper device having a body portion with a circular orifice forming a wiping edge or face and a plurality of resilient members extending from the body, of members having proximal end portions extending parallel to the axis of the orifice to inhibit set of the members when they are retained for a prolonged period in a deformed configuration.

Two forms of wiper and assembly constructed in accordance with the invention will now be described in greater detail, by way of example only, with reference to the accompanying drawings in which:

Fig. 1 shows an axial section through an applicator assembly constructed in accordance with the invention,

Fig. 2 shows an axial section through a first wiper device constructed in accordance with the invention,

Fig. 3 shows a plan view of the device of Fig. 2,

Fig. 4 shows a side view of a second wiper device constructed in accordance with the invention, and

Fig. 5 shows a plan view of the device of Fig. 4.

Referring to Fig. 1, an applicator assembly, in particular a mascara unit, is shown. The unit comprises a thermoplastics container indicated generally by the reference numeral 1 having a neck portion 3 with an external thread 4 joined to the body of the container by a shoulder 2.

A cap 8 provided with an internal thread 9 is fitted onto the external thread 4 of the neck 3, an outside cover 10 being held in position over the cap 8 by a heat-setting adhesive layer 11, or simply by a force fit. Extending from the cap 8 into the interior of the container 1 is a rod 12, to the lower end 13 of which is attached an applicator brush 14. A wiper device indicated generally by the reference numeral 6 having a rim 15 (see Fig. 2) is located in the neck 3, the rim 15 providing a seal 5 between the container 1 and the cap 8.

Referring now more especially to Figs. 2 and 3, the wiper device 6 is shown in more detail. As indicated above, it has at its upper end a rim 15 which, in addition to providing a seal, forms a stop to locate the device 6 in the neck 3, and a bead 17 on the outside wall of the body just below the rim 15 serves to engage with a corresponding recess in the inside wall of the neck 3 and assist in sealing and ensuring a secure fit. The external and internal walls of the body of the device taper at its lower end, the internal wall terminating in a wiping edge 18. Extending parallel to the axis of the

device from the lower end wall 19 are four spaced apart elongate pillar members 21, from each of which a wiping finger 22 extends toward the axis. The extremities 23 of the fingers 22 are rounded to enable them to approach the centre of the applicator brush 14 as closely as possible on withdrawal of the brush. In order to minimize the extent of the deformation of the pillars and fingers when the applicator rod 12 is in its storage position, an annular groove 24 (see Fig. 1) may be formed in the rod at the appropriate location.

The fingers 22 extend at an angle of about 110° to the pillar members 21.

Typically, the diameter of a mascara applicator rod is within the range of 2.5 to 4.5 mm. For a 4.3 mm rod, the diameter of the wiping face may be about 4.2 mm and the length of the pillars about 3.6 mm, the fingers each extending about 2.0 mm from the internal wall of the pillars.

Referring now to Figs. 4 and 5, in which features corresponding to those of Figs. 2 and 3 are given corresponding reference numerals, a second embodiment of the wiper device is shown, in which the body portions are like those of Figs. 2 and 3. Extending from the lower end wall 19 of the body of the wiper device 6 are six spaced apart members indicated generally by the reference numeral 30, the proximal portions 31 of each member extending parallel to the axis of the device and the

distal end portions 32 extending inward at an angle of about 130° to the axis, intermediate portions 33 providing a smooth curve between the end portions. As in the embodiment shown in Figs. 2 and 3, the members extend as close to the axis as is consistent with their being capable of being removed from a mould during manufacture. In both embodiments, the material of which the device is constructed is resilient, and the proximal portions 21 & 31 of the members assist in inhibiting amnesia under deformation.

CLAIMS:

1. A wiper device suitable for use in a cosmetics applicator assembly, which comprises a resilient body having a substantially circular orifice, and spaced apart around the periphery of the orifice a plurality of elongate resilient members, each having an end portion proximal to the body and a free, distal end portion, the proximal end portion extending from the body in a direction having at least a substantial component parallel to the axis of the circular orifice, the free distal end portions of the members extending inward toward the axis and the distal ends being at or close to the axis.

2. A device as claimed in claim 1, wherein the proximal ends of the members extend parallel to the axis.

3. A device as claimed in claim 1 or claim 2, wherein each member comprises a straight proximal end portion and a straight distal end portion.

4. A device as claimed in claim 3, wherein the distal end portion lies at an obtuse angle to the proximal end portion.

5. A device as claimed in claim 4, wherein the angle is within the range of from 95° to 155°.

6. A device as claimed in claim 5, wherein the angle is within the range of from 100 to 110°.

7. A device as claimed in any one of claims 1 to 6, wherein there are from 2 to 8 members.

8. A device as claimed in claim 7, wherein there are from 4 to 6 members.

9. A device as claimed in any one of claims 1 to 8, wherein the members occupy at most 50% of the area of the orifice when the device is viewed axially.

10. A device as claimed in any one of claims 1 to 9, wherein the distance between a pair of opposed distal ends is at most 25% of the diameter of the orifice.

11. A device as claimed in any one of claims 1 to 10, formed of a thermoplastic, elastomeric or thermoplastic elastomeric material or formed of a laminate of two or more such materials.

12. A device as claimed in claim 11, wherein the material is a low density polyethylene or an ethylene-vinyl acetate copolymer.

13. A material applicator assembly comprising a container for a viscous material, a closure member, an applicator attached to the closure member by a rod, and a wiper device as claimed in any one of claims 1 to 12, located within the container, advantageously positioned about the rod.

14. The use of a wiper device as claimed in any one of claims 1 to 12, to remove drops from the free end of a material applicator as it is withdrawn through the wiper device.

15. The use, in a wiper device having a body portion with a circular orifice forming a wiping edge or face and a plurality of resilient members extending from the body, of members having proximal end portions extending parallel to the axis of the orifice to inhibit set of the members when they are retained for a prolonged period in a deformed configuration.

16. The use as claimed in claim 15, wherein the wiper device is as defined in any one of claims 1 to 12.

17. A wiper device or an applicator assembly substantially as described with reference to and as illustrated by Figure 1, Figures 1 to 3, Figures 1, 4 and 5, Figures 2 and 3, or Figures 4 and 5 of the accompanying drawings.

18. Any new feature described herein or any new combination of hereindescribed features.



Application No: GB 9609339.8
Claims searched: 1-17

Examiner: Graham Werrett
Date of search: 27 June 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): A4K

Int CI (Ed.6): A45D

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1276859 (EJECTORET) See page 4, lines 76-110	1, 15
X	EP 0202932 A (COLE) see figures 12-15	1, 15
X	WO 93/01736 A (LHUISSET) see figs. 1-5	"
X	US 5490737 (GUERET) see figs. 2, 3	"
X	US 4241743 (SCHNABEL) see fig. 2	"

X Document indicating lack of novelty or inventive step
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